

**REMARKS**

Claims 20-23 and currently appear in this application. The Office Action of September 25, 2007, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

**Amendments**

In the preliminary amendment filed February 1, 2007, part of claim 20 as originally filed was erroneously deleted. The deleted recitation has been added to claim 20.

Claims 24 and 25 are cancelled.

**The Claimed Invention**

The method as claimed herein provides a method for effectively recovering not only a lignophenol derivative, but also a sugar solution. Thus, the water amount stipulated in claim 20 is an important feature of the claimed method to achieve this objective.

As described in the present specification at page 3, paragraph 0003, when the reaction is diluted with a large excess of water, for example, an amount of water at least 10 times the amount of the lignocellulosic material, the sugar

concentration in the acid/sugar solution obtained as the liquid phase is very low, and thus it has been difficult to separate, recover, and use the sugar. Conventionally, a large excess of water was added in order to stop the reaction with the acid.

The method claimed herein makes it possible to recover both the lignophenol derivative and the sugar from the reaction. This is accomplished by using an amount of water from about 0.6 to 6 times the amount of the mixture as a volume ratio.

#### Election/Restriction

Applicant hereby affirms election of claims 20-25. It is believed that the Examiner meant to include claim 20 in Group I, as it is the independent claim in this group.

#### Rejections under 35 U.S.C. 112

Claims 24 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As claims 24 and 25 have been cancelled, this rejection is now moot.

**Art Rejections**

Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka, U.S. 6,632,931 in view of Hunaoka et al., EP 1,273,632.

This rejection is respectfully traversed. Funaoka does not teach that the water is present in a ratio of from 0.6 to 6 times that of the mixture by volume. Contrary to the Examiner's assertion, Hunaoka does not solve this deficiency.

The Examiner notes that Hunaoka discloses that the reaction product from 20 ml of phosphoric acid is added to approximately 350 ml of deionized water. However, it is respectfully submitted that the recitation "350 ml" resulted from a clerical error, and it should read "3500 ml" based upon the following description in the citation and the description in WO01/074949 from which the European publication originated.

In paragraph 0065 of Hunaoka, after reciting that the water is present in an amount of 350 ml, there is a description "thus reducing the phosphoric acid concentration to 10% or less." Thus, it should be recognized that 350 ml of water is not consistent with the description, since if the amount of water is 350 ml, the concentration of phosphoric acid after dilution with water is about 30%, based upon the following calculations:

Total volume of the reaction product:

238 ml

Phosphoric acid 200 ml

Wood flour 38 ml (this value is based on the  
assumption that the density of wood flour is 0.6)

Phosphoric acid concentration after dilution with  
water 32%

$$(200 \times 0.95) / (238 + 350) \times 100 = 32.3\%$$

Original concentration of phosphoric acid see  
paragraph 00073 0.95

Therefore, the amount of water, 350 ml, cannot be  
correct, and thus would be easily understood by one skilled in  
the art.

Submitted herewith is a copy of the corresponding  
portion of WO 01/074949, from which Hunaoka is derived. This  
priority document discloses that the reaction product from 200  
ml of phosphoric acid is added to approximately 3500 ml of  
deionized water. [emphasis added] This amount of water is  
consistent with the description , "thus reducing the  
phosphoric acid concentration to 10% or less", since the  
concentration of phosphoric acid after dilution with 3500 ml  
of water is about 5%, based on the following calculation:

$$(200 \times 0.95) / (238 + 3500) = 5.1$$

Therefore, Hunaoka should be read as adding 3500 ml of water, since the amount of 350 ml does not make sense in the description, and the PCT application recites the correct amount.

When water is added in the amount of 3500 ml, the amount of water is 15 times the amount of the reaction product ( $3500/238 = 14.7$ ). This value is much larger than that recited in claim 20 of the present application. Therefore, combining Hunaoka with Funaoka would not lead one skilled in the art to the presently claimed method, because there is no recitation of the amount of water used in the presently claimed invention.

It is respectfully submitted that this situation is not unlike the situation in *In re Yale*, 168 USPQ 46 (CCPA 1970). In that case, the court found that a typographical error in a reference article in which the error was obvious to one of ordinary skill in the art did not describe or suggest the compound or put the public in possession thereof. In the present case, a self-evident typographical error in the amount of water added to the reaction mixture would not render the presently claimed method obvious.

Claims 22, 24 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka in view of Hunaoka and further in view of Tournier, U.S. 4,511,433.

This rejection is respectfully traversed. As claim 24 and 25 have been cancelled, only claim 22 will be discussed.

It is agreed that Funaoka and Tournier can be combined because they are concerned with the same field of endeavor, namely, lignin-phenol from cellulose through filtration. However, as noted above, Hunaoka does not teach the claimed process because Hunaoka uses a much greater volume of water than is used in the herein claimed process.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Funaoka in view of Hunaoka as applied to claim 20 above, and further in view of Mattison et al., U.S. 4,936,999.

This rejection is respectfully traversed. As noted above, Hunaoka teaches an amount of water far in excess of that recited in the herein claimed process. Therefore, even if, *arguendo*, Funaoka and Mattison can reasonably be combined, there would be no motivation for one skilled in the art to use an amount of water that is only 0.6 to 6 times the amount of reaction solution.

It is noted that the prior art made of record and not relied upon is considered to be pertinent to applicant's disclosure.

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Amd. dated December 26, 2007  
Reply to Office Action of September 25, 2007

In view of the above, it is respectfully submitted  
that the claims are now in condition for allowance, and  
favorable action thereon is earnestly solicited.

Respectfully submitted,

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